

CLAIMS

1. A housing for use in a portable electronic device comprising:
an outer visible surface, wherein the outer visible surface is composed of an
5 appearance changing substance responsive to an environmental stimulus.
2. A housing as recited in claim 1 wherein the housing encases a plurality of
internal components of the portable electronic device, and further wherein the
plurality of internal components generates the environmental stimulus.
- 10 3. A housing as recited in claim 1 wherein the environmental stimulus is a
combination of one or more stimuli selected from a group consisting of an acoustic
stimulus, a thermal stimulus, an electrical stimulus, an electromagnetic stimulus, an
olfactory stimulus, and a mechanical stimulus.
- 15 4. A housing as recited in claim 3 further comprising:
at least one resistive element, wherein the thermal stimulus is an energizing of
the at least one resistive element.
- 20 5. A housing as recited in claim 1 wherein the appearance changing substance is
a combination of one or more substances selected from a group consisting of a color
changing substance, a pattern changing substance, an illumination producing
substance, a shape changing substance, and a sensory producing substance.

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6. A housing as recited in claim 5 wherein the sensory producing substance is a combination of one or more substances selected from a group consisting of a thermal producing substance, a vibration producing substance, and a haptic producing substance.

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7. A housing for use in a portable electronic device comprising:

an outer visible surface having:

at least one shape element composed of an appearance changing

5 substance responsive to an environmental stimulus.

8. A housing as recited in claim 7 wherein the shape element becomes visible in response to the environmental stimulus.

10 9. A housing as recited in claim 7 wherein the shape element becomes invisible in response to the environmental stimulus.

10. A housing as recited in claim 7 wherein the shape element comprises at least one identification information selected from the group consisting of identification
15 data, identification codes, identification patterns, and identification images.

11. A housing as recited in claim 7 wherein the shape element comprises an environment index gauge.

20 12. A housing as recited in claim 7, wherein the housing encases a plurality of internal components of the portable electronic device, and further wherein the plurality of internal components generates the environmental stimulus.

13. A housing as recited in claim 7 wherein the environmental stimulus is a combination of one or more stimuli selected from a group consisting of an acoustic stimulus, a thermal stimulus, an electrical stimulus, an electromagnetic stimulus, an olfactory stimulus, and a mechanical stimulus.

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14. A housing as recited in claim 12 further comprising:
at least one resistive element, wherein the thermal stimulus is an energizing of the at least one resistive element.

10 15. A housing as recited in claim 7 wherein the appearance changing substance is a combination of one or more substances selected from a group consisting of a color changing substance, a pattern changing substance, an illumination producing substance, a shape changing substance, and a sensory producing substance.

15 16. A housing as recited in claim 15 wherein the sensory producing substance is a combination of one or more substances selected from a group consisting of a thermal producing substance, a vibration producing substance, and a haptic producing substance.

17. A housing for use in a portable electronic device comprising:
an outer layer, wherein the outer layer is composed of a transparent material;
an inner layer; and
5 an enclosed volume arranged between the outer layer and the inner layer,
wherein the enclosed volume holds at least one fluid and at least one decorative
substance.
18. A housing as recited in claim 17 wherein the at least one decorative substance
10 is a combination of one or more substances selected from a group consisting of a
colored dye, a plurality of light reflecting particles, a plurality of bubbles, at least one
solid shape, and at least one decorative substance comprises an immiscible liquid.
19. A housing as recited in claim 17 wherein the at least one decorative substance
15 is characterized by a decorative substance viscosity, wherein the at least one fluid is
characterized by a fluid viscosity, and further wherein the decorative substance
viscosity differs from the fluid viscosity.
20. A housing as recited in claim 17 wherein the at least one decorative substance
20 moves in relation to the at least one fluid in response to an environmental stimulus.

21. A housing as recited in claim 20 wherein the environmental stimulus is a combination of one or more stimulus selected from a group consisting of an acoustic stimulus, a thermal stimulus, an electrical light stimulus, an electromagnetic stimulus,
5 and a mechanical stimulus.

22. A housing as recited in claim 20 wherein the housing encases a plurality of internal components of the portable electronic device, and further wherein the plurality of internal components generates the environmental stimulus.
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23. A housing as recited in claim 22, wherein the environmental stimulus is a light, and further wherein the light interacts with the at least one decorative substance to create a plurality of visual effects.

24. A housing as recited in claim 23 wherein the light further interacts with the at least one fluid to create a second plurality of visual effects.
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25. A housing for use in a portable electronic device comprising:
- an outer layer, wherein the outer layer is composed of a transparent material;
 - an inner layer; and
- 5 an enclosed volume arranged between the outer layer and the inner layer,
- wherein the enclosed volume includes a plurality of fiber optics.

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